CLAIMS

1. A method for managing data to be written to a file served by a storage system while the file is undergoing a write allocation procedure, the method comprising the steps of:

receiving a write operation comprising data to be written to the file;

associating the received data with a buffer data control structure associated with the file; and

marking the buffer data control structure associated with the file as being dirty for a next consistency point.

2. The method of claim 1 wherein the buffer data control structure comprises a first data pointer and a second data pointer.

3. The method of claim 1 wherein the step of associating the received data with the buffer data control structure further comprises a step of setting a pointer in the buffer data control structure to a memory location associated with the received data.

4. The method of claim 1 wherein the step of marking the buffer data control structure associated with the file as being dirty for a next consistency point comprises the step of setting a flag in a flags array of the buffer data control structure.

5. The method of claim 1 wherein the buffer data control structure comprises a flags array, the flags array having entries associated with a current consistency point and with a next consistency point.

6. The method of claim 5 wherein entries associated with a current consistency point are accessed by indexing into the flags array using a value calculated by performing a logical AND operation on a consistency point counter and a value of 1.

7. The method of claim 6 wherein the consistency point counter is monotonically increasing value that identifies a current consistency point.

8. The method of claim 5 wherein entries associated with a next consistency point are accessed by indexing into the flags array using a value calculated by subtracting from a value of 1 a result of performing a logical AND operation on a consistency point counter and a value of 1.

9. The method of claim 8 wherein the consistency point counter is a monotonically increasing value that identifies a current consistency point.

10. The method of claim 5 wherein entries associated with the current consistency point and the next consistency point are differentiated by performing modulo two addition to a consistency point counter.

11. The method of claim 10 wherein the consistency point counter is monotonically increasing.

12. A storage system for using a networked environment capable of accepting write operations directed to files currently undergoing a write allocation procedure, the storage system comprising:

means for receiving write operations containing data directed to the file;

means for associating the received data with a buffer data control structure; and

means for marking the buffer data control structure as being dirty for a next consistency point.

13. The storage system of claim 12 wherein the means for associating the received data with a buffer data control structure comprises means for setting a pointer in the buffer data control structure.

14. The storage system of claim 10 wherein a second pointer in the buffer data control structure points to data already written to the file.

15. A storage system adapted to enable write operations to a file undergoing write allocation, the storage system comprising:

a write allocation process of a file system, the write allocation process adapted to associated received file data with a buffer data control structure upon receipt of a write operation directed to the file while the file is undergoing write allocation.

16. The storage system of claim 15 wherein the buffer data control structure comprises a flags array having an entry associated with a current consistency pint and an entry associated with a next consistency point.

17. The storage system of claim 16 wherein the entry associated with the current consistency point is identified by performing addition modulo addition to a consistency point counter.

18. The storage system of claim 16 wherein the entry associated with the next consistency point counter is identified by performing addition modulo two to a consistency point counter.

19. The storage system of claim 16 wherein the entry associated with the current consistency point is accessed using an index value calculated by performing a logical AND operation on a consistency point counter and a value of 1.

20. The storage system of claim 16 wherein the entry associated with the next consistency point is accessed using an index value calculated by subtracting from a value of

of 1 a result of performing a logical AND operation on a consistency point counter and a value of 1.

21. A method for managing data to be written to a file while the file is undergoing a write allocation procedure, the method comprising the steps of:

determining if the buffer is dirty for a current consistency point;

performing, in response to determining that the buffer is dirty for the current consistency point, write allocation of a buffer associated with the file for a current consistency point; and

freeing, if the buffer is dirty for a next consistency point, data written during the step of write allocation.

22. The method of claim 21 wherein the step of determining if the buffer is dirty for a current consistency point further comprises the step of examining a flag in a buffer data control structure associated with the buffer.

23. The method of claim 22 wherein the flag is an entry in a flags array storing entries for the next consistency point and the current consistency point.

24. The method of claim 23 wherein the entry for the next consistency point is identified by performing addition modulo two to a consistency point counter.

25. The method of claim 23 wherein the entry for the current consistency point is identified by performing addition modulo two to a consistency point counter.

26. The method of claim 21 further comprising the step of increasing a consistency point counter.

27. A buffer data control structure for use in a storage operating system permitting write operations to files undergoing a write allocation procedure, the buffer data control structure comprising:

a flags array having entries for flags associated with a current consistency point and entries associated with a next consistency point;

a first data pointer pointing to file data associated with the current consistency point; and

a second data pointer pointing to file data associated with the next consistency point.

28. The buffer data control structure of claim 27 wherein the flags associated with a current consistency point are identified by performing addition modulo two to a consistency point counter.

29. The buffer data control structure of claim 27 wherein the flags associated with the next consistency point are identified by performing addition modulo two to a consistency point counter.